earlier about an interference problem between Capitol and American Mobile Phone.

A Yes.

Q To your knowledge, to your knowledge has Capitol filed a complaint with the FCC --

A No. Not to my knowledge.

Q To your knowledge, has the -- has there been an FCC investigation?

A No. Not to my knowledge.

Q Now, you were testifying about your theory of the way the -- and correct me if I'm -- if I mischaracterize your testimony, but you were testifying about the way that you would chain the pages from 151.51 to 152.48. Is that correct?

A Yes.

Q And do you remember when Mr. Hardman asked you whether you were aware that the manufacturer of the terminal stated that that could not be done?

A Yes.

Q Have you discussed your theory as to how it could be done with the manufacturer of the terminal?

A Yes.

Q And when was that?

A I've talked to him several times about it and I don't know exact dates.

Q Okay, and what, what did they tell you?

A That two channels could not be cross-connected together unless it is a chaining process by chaining the numbers together.

Q Now, you indicated earlier that RAM's terminal would be capable of chaining -- of doing that kind of chaining that you described?

A Yes.

Q When you, when you do that kind of chaining is it possible -- for example, would it possible for RAM to chain its pages to a frequency that Capitol was on?

A No. No, there's, there's -- telephone company routes the number to the paging terminal and RAM's numbers comes to RAM's paging terminal, Capitol's numbers go to Capitol's paging terminal and American Mobile Phone's numbers go to American Mobile Phone's. I have no access to anybody else's paging terminal to put a page on their system unless I actually pick up the phone and dial one of their numbers. That's the only access anybody has other than the company their self.

Q Now, if you were sharing a frequency with someone else, you would have access to that frequency, correct?

A I would have access to that frequency.

Q Okay. Would it possible to repeat pages from someone else's frequency on your shared frequency?

MR. JOYCE: If you don't understand the question you

can ask --

JUDGE CHACHKIN: The witness understands the question. The witness was answering.

MR. BLATT: It would be possible to, to, to replay all of their traffic, but it would not be possible, possible to selectively pull out pages and play them over the air.

BY MS. LADEN:

Q So, in other words, it would be an exact duplication?

A Right. Yes.

Q And what about the time delay? If you went to do that how would you do that? Would you tape them? I don't understand how you would technically do that.

A Well, I mean, technically you could take anything off the air and, and rebroadcast it just by recording it or something. But I don't know, you know, what -- I don't understand what --

Q How long would it take if you did that? If you recorded something off of somebody else's on-air traffic and replayed it through yours, would there be a time delay between the original and the retransmission?

A Yes. I mean, the way, the way systems are built you can't just do that. You'd have to put in all new -- another transmitter. I mean, it's, it's not something you can just do. There's a lot of technical stuff behind it.

JUDGE CHACHKIN: So you're saying you need additional equipment?

MR. BLATT: Yeah, you would need additional -- I mean, that's --

JUDGE CHACHKIN: What would you need?

MR. BLATT: You would need a repeater. I mean, it's not something that, that a paging company can just up and do. I mean, you'd have to spend money and time figuring out how you could do it. I don't know why you would ever want to do it, but I mean, anything is technically possible almost.

BY MS. LADEN:

Q Now, if you did that, the second page, the retransmission, the repeated page if you will, what would you guess would be the time delay -- would there be a delay in time between the original transmission and the retransmission?

A Not if you just had it running through a repeater, just something to repeat it. It would be same as simultaneously. It would be, you know, milliseconds later.

Q Now, if, if you were to do that, if someone were to, to do that, to copy someone else's pages and retransmit them on their own frequency, would the pages -- would the retransmission contain the same cap codes?

A Yes. I mean, everything is going to be identical.

Q Just a moment, Your Honor. I'm just reviewing my notes. If you were to send a page -- if you were to chain the

pages in the manner that you've described and the second frequency were busy, what would happen to the pages that came out on the first frequency?

A The pages on the first frequency would, would go out in, in the order that it hit it. It -- you know, if it's not busy then it's going to just dump the traffic as soon as it gets to the buffer.

Q What if it's busy?

A Then it's going to wait and hold it in the buffer and not send the page out until the channel is clear.

Q Okay, and that would be the case with a chaining. Is there a difference between repeating a page and chaining a page?

A Yes.

Q Okay. So, if someone were to -- if RAM were to repeat the pages of, of someone else that were coming over another frequency, that would be different than chaining them? I mean, is RAM's terminal capable of chaining pages that come from somewhere else?

A No. They have to be initiated through their own paging terminal.

MS. LADEN: Your Honor, I have no further questions.

JUDGE CHACHKIN: Have anything, Mr. Hardman?

RECROSS-EXAMINATION

BY MR. HARDMAN:

Q Yes, I do. On the last question, Mr. Blatt, I believe your testimony was that RAM could not listen off the air and then chain -- and then chain a page on 152.480 from an external -- from what it heard. Is that right?

A Could you repeat the question? I'm not --

Q Well, I'm, I'm trying to understand your testimony in response to the last question from Ms. Laden and I understood you to say that, that RAM could not monitor 152.51 MHz and then cause its system to chain a page -- chain from a page that it heard on 152.51 from some external source to a page that it generated on 152.480 -- is that right?

A They cannot chain one of their pagers to one of Capitol's pagers. Is that -- I mean I don't understand.

Q Well, but from, from off-the-air monitoring. Is that right? Was that, was that your testimony?

A My testimony was that RAM within their equipment cannot chain one of their numbers to another company's.

Q Well, I don't understand that. Let's say hypothetically that someone took a look at the output from the Hark verifier that, that has been identified as -- Exhibit 16 I think is the -- I'm sorry, is, is, is the one from 152.51 MHz.

Q Okay.

A All right. Took a look at that, and that, that gives them a complete printout of all the cap codes in, in use

on that day or that, that there were transmissions to --

Q Exactly.

A -- on Capitol's channel. Isn't that right?

A Exactly.

Q And those -- and, and the Hark verifier even tells them what kind of format that was in doesn't it?

A It, it prints the messages either a numeric or as an alpha, whichever one it might have been.

Q And it tells you whether it's pox sag, doesn't it?

A Yes.

Q Or any other type of paging format?

A Yes.

Q So, someone could take that printout or the results of your monitoring through the Hark verifier and have all the information it would need to generate a page on that frequency to pagers on -- that, that, that were operating on 251.51, Capitol's legitimate pagers, couldn't they?

A Yeah. Someone could also take -- just type the sheet of paper and make it identical. I mean, the --

Q But what I'm saying is, they could, they could, they could take that information and they would have the information -- the information on that printout and they would have all the information they would need to be able to generate a false page to that number wouldn't they?

A Yes.

Q And again, hypothetically, if someone were so inclined they could go into RAM's terminal and set up a chain from a legitimate RAM page to chain to that cap code off of RAM's system couldn't they?

A RAM could set up identical subscribers. I mean, they could go into their terminal and program a number with, with that cap code.

Q Right. So, it's a bit over an overstatement isn't it that -- to say that it's -- that it's -- it would be impossible for RAM to generate a -- this type of, of page on its system isn't it? It, it, it really does depend on, on how hard they want to work at it isn't it?

A Yes. I mean, you can generate any cap code you want on any page -- you know, any -- you can program any cap code you want on a pager number so you could -- you know, whatever they want the cap code to be you can program it.

Q Now, you also were asked some, some questions about the feasibility of recording something off the air and then replaying it.

A Right.

Q Do you recall those questions?

A Yes.

Q Now let's say someone hypothetically attempted to do that. Isn't it true that you're talking about pages that are milliseconds long to, to record -- when, when you're using a

tape recorder you're recording pages that are milliseconds long?

A Yes.

Q Isn't that right? Do you know anyone who is capable of operating a tape recorder to record only milliseconds at a time?

A Well, I mean, you can record it and play it back but it's going to be unusual communications. It's not going to be fit to set off a pager. I mean, but you can record something and play it back is what I was saying.

Q I -- okay, yeah, no, I understand.

A I mean, as far as the timing and everything, the page ain't going to be any good anyway. But I mean, you can broadcast it out.

Q Yeah, and, and probably the Hark verifier wouldn't be able to decode it would it?

A It would not.

Q All right. So, in your own mind you ruled out that someone recorded this off the air and, and, and just played it back --

A Yes.

Q Okay. Now, on the -- you were also asked some questions about what happens and as I, as I interpreted the question it was what happens if in the chaining -- when, when you're chaining pages on the terminal what happens if the

second channel, namely, 152.48, is busy? Do you recall --

A Yes.

Q -- line of questioning? And I believe that you testified that, that the, the second page, the chain page, would be held in, in, in a queue until the channel was available. Isn't that right?

A Yes.

Q And was that your observation when you monitored the, the channels?

A There, there was a delay between 152.510 and, and 152.480.

Q But the repeated pages were held until the channel was clear?

A Yes, pages were held until the channel was clear.

Q All right, and when the -- when that occurs, isn't it true that the, the -- all the pages are -- that -- for the second channel, all of them, not chain pages, but any other pages that have been addressed during that time are, are queued up in a line or batched together --

A Yes.

Q -- during the whole period?

A Yes.

Q Isn't that right?

JUDGE CHACHKIN: Is that right?

MR. BLATT: Yes, it is.

BY MR. HARDMAN:

Q And then when the channel is clear and sort of all spit out together, in, in basically an unbroken sequence. Isn't that right?

A Yes.

MR. HARDMAN: That's all my questions, Your Honor.

JUDGE CHACHKIN: You're excused. Thank you. We should take a 10-minute -- pardon me?

MS. LADEN: Your Honor, I had some, I had some questions on redirect.

JUDGE CHACHKIN: Re-redirect?

MS. LADEN: Yes, Your Honor. He asked some, some questions --

JUDGE CHACHKIN: Did he open up new areas? If he opened up new areas I'll permit it. What --

MS. LADEN: He was talking about the chain -- he opened up new areas about the chaining. He asked him more details about the chaining, how the chaining would work.

MR. HARDMAN: No, Your Honor. What I asked was specifically in a situation where -- and these were questions addressed by Ms. Laden -- where the second page, the chained page, was on a channel that was busy, what -- you know, what would happen. Would it be buffered, and that was -- and, and I merely followed-on to point out that when they're buffered in that fashion they're batched together and then when the

channel is clear, transmitted in an essentially unbroken sequence. That's what the witnesses testified. That's, that's not a new area. That's just a clarification.

MS. LADEN: I agree that that's not a new area. The area that I wanted to go into were the questions that Mr. Hardman asked about whether a recording -- that, that the chaining did not work the way a recording would work, that the chaining had to be programmed. Mr. Hardman asked if someone could actually sit there and reprogram the information from each page onto another frequency. That I did not ask.

JUDGE CHACHKIN: All right. Sit down. You're still under oath. Go ahead, Ms. Laden.

REDIRECT EXAMINATION

BY MS. LADEN:

Q Mr. Blatt, I, I don't understand the chaining situation and I wonder if you would clear this up for me. When you have a chaining like this, I believe you testified that, that random pages from the one frequency show up on the second frequency --

A Yes.

Q -- on the Hark verifier. Is that correct?

A Yes.

Q So, they're not in order are they? They're, they're random.

A They're, they're random pages off of their RCC

frequency.

Q Okay. Now, your theory of how that is accomplished is to chain the codes somehow between one page -- to code the original page in some way so that it goes out on the second frequency later?

A Yes.

Q And that, that is the chaining mechanism that you described?

A Yes.

Q And Mr. Hardman just asked you now that -- whether someone could sit and program that information from one Hark verifier and send it to a paging terminal?

A Yes.

Q And, and I believe you indicated yes.

A Yes.

Q My question is, if someone were to do that kind of programming how long would it take between the first page and the retransmission?

A If they're all chained together then they're all going to be -- you know, when you dial the first number all of them is going to be in the chain.

Q Okay. Now, would you -- in order to chain them, do you have to have access to both terminals? Do you have to have access with -- to the terminal where the page originated?

A Where the page is originated, yes.

MS. LADEN: Okay. I, I have no further questions. Thank you, Your Honor.

JUDGE CHACHKIN: You have something on this now?

MR. HARDMAN: Yes, I do. I'm, I'm now confused on the, on the, on the chaining.

RECROSS EXAMINATION

BY MR. HARDMAN:

Q When you chain the pages together, isn't it true that you, you don't chain to the same cap code?

A That's totally up to whoever is doing the chaining. I mean, it's a programming feature.

Q So, it, it may be or it may not be --

A It's, it's, it's software programmable when you set up a pager. You can tell it whatever cap code you want it to be.

Q So, again, hypothetically, if the same person wanted to say do a -- some sort of group call feature -- are you familiar with the term group call?

A Yes, sir.

Q And some members of the group were on 152.51 and some members of the group were on 152.480, it would be perfectly legitimate to chain the two together with the same cap code so that both members of the group would get the page at the same time and get the same message?

A If they had a pager on the two different

frequencies, then, yes, they would.

Q Well, but I'm talking about different members of the group. Some members of the group could, could be on 152.51 and other members of the group could be on 152.480 and the, the group call feature would still work wouldn't it?

A It's going to set both pagers off if it's programmed like that.

Q And the same message, you know, would be sent to, to both parties?

A Yes, it would.

Q Thank you.

JUDGE CHACHKIN: You're excused. We'll take a 10-minute recess.

(Whereupon, a brief recess was taken from 11:11 a.m. until 11:23 a.m.)

MS. LADEN: Yes, Your Honor. The next witness is Raymond Bobbitt.

JUDGE CHACHKIN: Is Mr. Bobbitt here?

MS. LADEN: I believe he's in the witness room.

JUDGE CHACHKIN: All right. Mr. Bobbitt, will you raise your right hand, please? Please state your name and address for the record.

MR. BOBBITT: My name is Raymond Bobbitt. I live at 2210 Phelps Avenue, in Ashland, Kentucky.

DIRECT EXAMINATION

BY MS. LADEN:

Q Good morning, Mr. Bobbitt. I'm Paulette Laden with the Private Radio Bureau.

A Good morning.

Q Where are you employed, Mr. Bobbitt?

A I'm employed with RAM Technologies, Inc.

Q And how long have you been working there?

A Twelve years.

Q What is your title?

A Currently, senior vice president of networking services.

Q And what are your duties?

A To oversee and direct the company's technical systems.

Q Are you -- were you aware -- during your employment at RAM have you ever been aware of a interference problem or a problem sharing the frequency with Capitol Radiotelephone?

A Yes, I'm aware of several problems we've had with that.

Q When did you first become aware of those problems?

A In the fall of 1990 to the best of my recollection.

Q How did you become aware of it?

A We started hearing what sounded like broadcast band transmissions on the 152.48 frequency which we found to be someone transmitting we suspected from a mobile that was tuned

to our link frequency and holding a -- what sounded like a microphone up to their radio speaker and broadcasting that information on the link frequency. And during that process of trying to identify where that came from, we noticed that there was some amount of traffic that was on both 152.10 and 152.48 that sounded to us to be the exact identical same traffic. That's when it started to the best of my knowledge.

Q What was it about the -- what you heard? You -- did you actually hear this traffic that sounded like identical traffic? Did you actually hear --

A Yes, I did. Yes, I did.

Q And what did you hear that made you think it was the same?

A We, we have -- RAM Technologies is also an interexchanged carrier that owns facilities in several of the major cities around the region. We have receivers set up where there are co-channel, co-channel licensees in areas and bring that signal back to our Ashland office. We established a link where we could listen to not only the traffic in Charleston on 152.480, but also the traffic on 152.10, or we put them both up in the air and listened to them simultaneously and it sounded like stereo. We could hear the exact same cadence and sequence of traffic on both channels, the RCC and the PCP channel, at virtually simultaneously times. So it sounded very much like exactly the same traffic.

Now, although it was digital in nature and therefore we couldn't hear what was inside the content of the messages, it was obvious to me that it was the same traffic.

Q It was digital on both frequencies?

A Yes. It sounded digital.

Q Did you ever verify that the traffic was the same at some --

A During the 1990 period, there was, there was really no way that we knew of at the time to verify that the content was the same, but we could listen to the channel and say, you know, beyond a shadow of a doubt in my mind that it's the same traffic because it's identical in nature.

Q You said during the 1990s --

A During the, the fall of 1990 when this -- the first dual channel or the simultaneously transmissions occurred.

Q Were there other instances of problems sharing the frequency after 1990?

A Several, several instances of interference in the Charleston area and interference in the Huntington area from that period on until the fall of '92.

Q Are you familiar with a piece of equipment called a Hark verifier?

A Yes, I am.

Q And would you describe what that is?

A Well, the Hark verifier as it's known as a -- it's

basically a pager where the operator provides an external receiver and a printer and a terminal and it just does exactly what a pager does to display. It listens to the channel, decodes where the information whereas we couldn't understand what digital traffic was, the content of a digital packet, the ear couldn't detect that, the Hark verifier takes that audio off the channel, does the paging process or does the paging receiver's process of receiving it and decoding it and then gives it to you either on the screen or on a printer. It also provides filtering functions so if you'd like to look at one particular customer's pager or something to see if in fact they got the message or, or if it went over the air, then you could also filter and, and, and home in one cap code or so.

MS. LADEN: Your Honor, may I approach the witness?

JUDGE CHACHKIN: Yes.

BY MS. LADEN:

Q Thank you. Mr. Bobbitt, those documents that I just handed you are -- have been marked as Private Radio Bureau Exhibits 16 and 17. If you would look at those. Are those the sort of printouts that you would get from a Hark verifier?

A Yes, they are.

Q Have you ever seen those particular printouts?

A I believe I have, yes.

Q So, I take it then that you have used a Hark verifier?

A Oh, yes. We have one in operation right now 24 hours a day on our network.

Q Did you ever monitor -- did you ever use the Hark Verifier to monitor transmissions by Capitol?

A I used the Hark verifier or I was not personally, but I was part of a group that did use the Hark verifier to try to determine the nature of what we thought was duplicate pages on, on the RCC channel, yes.

Q And would you describe how that was done?

A Well, where would you like for me to start?

Q At the beginning.

A Well, we took a Hark verifier and I -- actually, two of them. Since they could only listen to one channel at a time much like any radio can only listen to one channel at a time, it required us to have two of them monitoring both channels at the same time. We took them up into Capitol's service area, Charleston, West Virginia, where we thought was a reliable signal in the Charleston area. Set up two receivers, set up two Hark verifiers, two printers and two terminals there to, to manage the system and watched the traffic. The whole premise behind why we wanted to do this was because some of our customers were getting pages that were not destined for them, that were destined for Capitol customers, because of a cap code duplication. The, the, the alert mechanism inside the pager makes -- that makes each

pager unique to the other pagers on the channel, someone was sending that alert signal that was one of our customers on the one -- on the PCP channel and we needed to find out who that was. And since it was digital, the only way we could do that was to either set up a pager on that channel and go around listening and hope that we hit one, one of these messages or to, to get us a couple verifiers, put them on the air and listen to various channels around the area. Well, we suspected it was Capitol because of a history of problems we've had. We went Charleston, set up the two receivers and beyond a shadow of a doubt in my mind that's where the traffic came from.

Q Now, why do you say beyond a shadow of a doubt in your mind?

A For, for two or three reasons, actually. One is that the complaints that we had from our customer base were followed-up on with telephone calls to recipients of the pages and they said oh, that's a Capitol pager, the subscriber was a Capitol subscriber. Two, was that the traffic on, on the RCC channel and the traffic on the PCP channel, the Hark verifier showed that they were identical cap codes, identical message contents, identical -- virtually identical time periods, etc.

Q Now, the 152.1 channel is -- that's Capitol's exclusive RCC channel?

A That's the RCC channel, yes.

Q Okay. Now, you, you've just testified that the traffic -- that the Hark verifier showed identical pages on both frequencies?

A Some pages, that's right. And as with any pager, you have to understand that paging is not a 100-percent reliable science. So, the Hark verifier wasn't intended I don't think in my mind to show a mirror type system. That's not what we were trying to do. We were trying to establish the origination of the page. And as in any pager, when you turn it on if you don't get any error conditions you expect it's going to work fine, as we did with the Hark -- excuse me, the Hark's. And when you, when you get a message you expect that 90 percent of the time it's going to be accurate which doesn't mean that it will be 100 percent of the time. So, we weren't trying to find a mirror condition. We were only trying to say this page came from 152.10, or the RCC channel, not -- you know, that it originated in actually both places, it was broadcast on both channels.

Q Okay. Do you have -- do you know how -- technically how that could have been accomplished? Your theory is that Capitol -- that it originated from Capitol, do you have a theory as to how technically that could have been accomplished, that that traffic could have been transmitted on both frequencies? Was it simultaneous, first of all?

A Simultaneous, no. It was staggered somewhat. The,

the PCP channels to my understanding were slightly later than the RCC traffic, the pages, so they weren't actually in, in time as -- exactly simultaneous, but they were within a couple minutes of each other. My theory as far as that might happen, I guess I have several and not knowing the correct one I, I'd be glad to explain the several ways we could do that.

Q Yes.

A One would be to just put up a receiver that receives, receives a channel and feed its audio into a transmitter on another channel. Now, you could do that and anyone could walk into town and do that. You know, I could take a, a receiver -- television receiver right here right now, take a video output, put it into a transmitter, broadcast it on another channel and basically do a repeating function. Well, that's one way you could do that. But every single -- then everything that you detected on the receiver would have been broadcast on the transmitter. That's not what happened here so that's why I don't think that's what happened in the '92 time frame. Now, in the '90 time frame I think that's exactly what happened because it was stereo, sounded exactly the same at all times.

Q And what's the difference in '92 that makes you think that that is not what happened?

A In '92, we -- first off, there's a difference between the analog transmitters and digital transmitters. So,

if I just received a signal and rebroadcast it through an analog transmitter and tried to rebroadcast digital traffic, the transmitter is not designed to be as accurate as it needs to be to set off a pager. So although the energy went out, the signal went out, the pager wouldn't have been able to detect that it was meant for it so it wouldn't have gone off, it would have just been distortion, noise, interference. In 1992, whatever happened, pagers were going off. So, if someone did it with a repeater they would have had to do it with a, a much better repeater than they had in 1990, for one thing. Two, is that because only some pages came through, for -- only some pages showed up -- some actual page data showed up on the PCP channel, not all of it was coming in. There's only one place where you could have separated that traffic, and that would have been at the terminal owned by Capitol Paging. In other words, once it went out over the air and I rebroadcast it, there's no way I could have picked out one little digital page. And I don't know if you've ever listened to this, but it sounds like a continuous stream of, of hogwash, it just sounds like noise and, and just -- it's unintelligible to the ear, you know, it just sounds like b-r-b-r-b-r, you know, noise patterns. It would have been virtually impossible for someone in the, in the time frame of a minute to have received some data, spliced it up a little bit and then retransmit it. Now, that's what a terminal does

very well, that's the terminal's job as a matter of fact, is to take information from the telephone company on message -- on telephone type lines, DID lines, and assimilate these batches of traffic so that they go out efficiently over the air. Now, with that in mind, it was my assumption that there must have been some mechanism in the Capitol terminal that was dividing this traffic up so that -- of course, the RCC channel which they had paying customers on I assume, they wanted all the traffic destined for that channel to be generated on that channel. But not necessarily all that traffic needed to be generated on the PCP channel. So, it's my assumption that there was a mechanism in the terminal that was feeding some of the pages generated by the, the Capitol terminal on to the PCP channel.

Q You said there were several ways you thought -- you had several theories, have you -- are, are those your theories which you just told us about or are there others?

A Well, then I guess inside of the second theory -- coming from the Capitol terminal I'm confident. Then how are they doing that? Well, there's variations of how you might do that inside the terminal. And I've spoken with Commonwealth about it since we own a Commonwealth and the only way that I know that we could have -- that, that Capitol could have generated what looked like duplicate pages on other channels was through what Capitol calls chaining. And without